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ABSTRACT

Nonprofit organizations seeking to improve the education system have found it necessary and desirable to form collaborative partnerships with other organizations, such as community and/or faith-based groups, and school districts. Such partnerships can reduce the costs of research and service delivery, limit the likelihood of service duplication, and provide much-needed access to additional resources and staff who possess expertise not found in any one organization. From FY 1996 through FY 1999, AEL, Inc., a nonprofit research and development organization, surveyed a number of clients to examine their perceptions of collaboration on various projects and the perceived impact of the products and services resulting from those collaborations. Survey instruments included the Collaboration Continuum Scale, the AEL Impact Questionnaire, and the Satisfaction with Collaboration Scale. Results were analyzed statistically. Results show that satisfaction was high across and within factors that affect collaboration. Level of collaboration was perceived to be slightly more interdependent than independent as measured using Intriligator's continuum framework. Finally, as clients became more satisfied with collaboration and saw collaboration as increasingly interdependent, they also perceived more impact of AEL products and services. (Contains 12 references and 12 tables.) (RT)

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Relationships of Clients' Satisfaction, Impact, and Level of Collaboration with an R&D Organization

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INTRODUCTION

In recent years, non-profit organizations seeking to improve the education system have found it increasingly necessary and desirable to form collaborative partnerships with other organizations that include community and/or faith-based groups, school districts, boards of education, social service providers, colleges and universities, government divisions as well as members of the private sector. Such partnerships can reduce overall costs associated with research and service delivery, limit the likelihood of service duplication, and provide much needed access to additional resources and staff who possess expertise not found in any one organization (Hodges, Nesman, & Hernandez, 1999). Moreover, when they work well, they contribute to the utility, support for, and ultimate success of educational improvement initiatives by making them relevant to a variety of partners.

Intriligator's Continuum of Collaboration

In 1983, Barbara Intriligator presented a newly developed framework for evaluating the effectiveness of partnerships between two or more organizations. Goldman & Intriligator (1988) further developed this framework characterizing it as a continuum of interdependence between partners that ranges from cooperation to coordination and collaboration with the degree of interdependence between partners increasing and autonomy decreasing from one level to the next. Intriligator & Goldman (1988) identified and utilized seven features to determine where an interorganizational relationship would be plotted on the continuum of collaboration. These include interagency objectives, interagency policies, interagency structure, personnel roles, resource allocation, power and influence, and interagency relationships. Intriligator (1992) further refined these features and produced Table 1(reproduced below) to demonstrate how these characteristics of interorganizational relationships vary.

As shown in Table 1, Intriligator believes that when organizations remain autonomous except for some collaborative activities around a particular, short-term, very focused goal and end the relationship when that goal is achieved, the relationship is cooperative and argues that this is the lowest level of interorganizational collaboration. In coordinative interorganizational relationships, organizations work together on longer-term projects, and must determine how they will interact with each other, how the associated activities will be accomplished, what procedures will be used to resolve disagreements, and what procedures are needed to establish common knowledge about program operations and outcomes. The purpose of the work tends to be quite focused, the organizations continue to function independently for the most part, but relinquish some autonomy to achieve the joint goal of the organizational relationship. Alternatively, true collaboration occurs when organizations relinquish some of their autonomy to meet client needs and agree that their goal is best accomplished together as a combined effort on all levels; staff energies, skills, and resources (Intriligator, 1992).

Table 1

Conditions That Support The Three Types of Interagency Efforts (Intriligator, 1992)

Conditions	Cooperation	Coordination	Collaboration
Objective	Short-term; routine and focused; can be done alone or together	Intermediate or long-term; complex single task; needs to be done together	Long-term; complex multiple task; needs to be done together
Policies	No interagency policies required	Interagency policies are compatible with single agency policies; management and decision-making policies are delineated	Interagency policies are determined by the collaborative unit; some changes in agencies' policies are made; management and decision-making policies are defined
Structure	Minor agency initiative; no inter-agency structure required; single function assigned to agency staff; autonomy not affected	Major agency initiative, interagency unit required, staffing of interagency unity helpful; agencies maintain autonomy, while agreeing to the collective action	Major agency initiative; interagency unit required; staff functions assigned to the interagency unit; agencies relinquish some autonomy to the interagency unit
Personnel Roles	Task done by personnel whose primary function is to represent their individual agencies' interests and who are assigned responsibility for the interagency objective on a short-term basis	Policy issues are decided by interagency committee members whose primary function is to represent their individual agencies' interests but who also demonstrate commitment to the interagency objective	Interagency task done by personnel who represent their home agency's interests but who also serve as advocates of the interagency effort; agency staff form an interagency council to insure policy authority over the interagency unit
Resources	Supported with discretionary funds which remain within the control of the individual agencies; provide on a one-time-only basis	Supported with dedicated funds from the individual agencies that remain within the control of individual agencies; commitment to allocate resources renewed annually	Supported by pooled resources that are largely within the control of the collaborative interagency unity; resources provided for an extended period of time
Power and Influence	Locus of control rests with single agencies; disagreements about turf are not an issue	Locus of control rests with single agencies; disagreements about turf issues are resolved using "majority rule" voting procedures	Locus of control rests with the interagency unit; disagreements about turf issues are resolved using consensus building processes
Interagency Relationships	Interagency decisions are made unilaterally by the single agencies; minimal trust is needed	Interagency decisions are made within the framework of the interagency effort; trust needs to be established	Interagency decisions are made by the collaborative unit; trust needs to be established initially and maintained over an extended period of time

Himmelman's Continuum of Collaboration

Himmelman (1996) also views collaboration as part of a developmental continuum of increasing complexity and commitment and views it as being best defined in relation to three other common change strategies of networking, coordination, and cooperation. Himmelman (1996, 2001) notes that each of the four can be appropriate depending on the how well the three most common impediments to working together can be overcome (i.e., time, trust, and turf). He also notes that any of these strategies will be most helpful when there is a shared vision; meaningfully shared power; and accountable, responsible, mutual agreed upon actions. In Table 2, Himmelman (2001) identifies, defines, and describes each of the four strategies for working together and provides examples of each (1996).

Table 2
Himmelman's Continuum of Collaboration *

	Strategies for Working Together*			
	Networking	**Coordinating**	**Cooperating**	**Collaborating**
Definition	Exchanging information for mutual benefit	Exchanging information for mutual benefit, and altering activities to achieve a common purpose	Exchanging information for mutual benefit, and altering activities and sharing resources to achieve a common purpose	Exchanging information for mutual benefit, and altering activities, sharing resources, and enhancing the capacity of another to achieve a common purpose
Relationship	Informal	Formal	Formal	Formal
Characteristics	Minimal time commitments, limited levels of trust, and no necessity to share turf; information exchange is the primary focus	Moderate time commitments, moderate levels of trust, and no necessity to share turf; making access to services or resources more user- friendly is the primary focus	Substantial time commitments, high levels of trust, and significant access to each other's turf; sharing of resources to achieve a common purpose is the primary focus	Extensive time commitments, very high levels of trust and extensive areas of common turf; enhancing each other's capacity to achieve a common purpose is the primary focus
Resources	No mutual sharing of resources necessary	No or minimal mutual sharing of resources necessary	Moderate to extensive mutual sharing of resources and some sharing of risks, responsibilities, and rewards	Full sharing of resources, and full sharing of risks, responsibilities, and rewards
Examples	Two organizations meet to share information about their missions, goals, major community programs, and their respective service areas	Two agencies share information about program activities and then decide to change their program content and schedules in order better to serve their common client or customer service areas	Two agencies share information about program activities, decide to change their program content and schedules in order better to serve their common client or customer service areas, and share physical space for programs and vans for transportation needs	Two agencies share information about program activities, decide to change their program content and schedules in order better to serve their common client or customer service areas, share physical space for program and vans for transportation needs, and offer a series of staff training workshops to each other in areas in which each organization has special expertise related to their common purposes

*Adapted from Himmelman (1996, 2001). Please note that these definitions are developmental and therefore when moving to the next strategy, the previous strategy is included within it.

METHODOLOGY

Over the four year period of FY 96 through FY 99, clients of AEL, Inc., a non-profit R&D organization with main offices in Charleston, West Virginia; completed a client survey designed to examine their perceptions of collaboration on various projects and, also, the perceived impact of the products and services resulting from those collaborations. Also, clients' satisfaction with the collaboration were measured in the first two years. This section describes the methodology of the study, including the instruments, the sample, and the analyses.

Instruments

The three instruments or scales employed in this study all were part of a larger annual client survey. Each instrument or scale will be described separately.

Collaboration Continuum Scale. The Collaboration Continuum Scale was based on the seminal work of Intriligator on inter-organizational relationships (1983, 1992) and on her continuum of increasing interdependence, from cooperative, to coordinative, to collaborative arrangements. Then, from the evaluation study by Intriligator and Goldman (1988), the seven features that determine where an interorganization arrangement is in terms of the collaboration continuum were employed as the items in the scale. These seven features/items are: interagency objectives, interagency policies, interagency structure, personnel roles, resource allocation, power and influence, and interagency relationships.

The response options for each of the seven Collaboration Continuum Scale items was a five-point, Likert-type scale from 1 to 5. Descriptors were printed under the numbered responses and they were: 1=Highly Independent, 2=Somewhat Independent, 3=About Equally Independent and Interdependent, 4=Somewhat Interdependent, and 5=Highly Interdependent. The specific instructions given to respondents for the collaboration scale were:

> For any project(s) or activity(ies) on which you have worked with AEL staff in the past or presently, please indicate the level of collaboration between your agency and AEL on the seven concepts listed below. In responding to these concepts, use a 5-point scale of level of collaboration from high independent actions of the two agencies to highly interdependent actions of your agency and AEL. The scale for each concept is named below:

1	2	3	4	5
Highly Independent	Somewhat Independent	About Equally Independent & Interdependent	Somewhat Interdependent	Highly Interdependent

In addition to the seven independent features being rated on the scale of 1 to 5, a total Collaboration Continuum Scale score was computed by adding all feature items together yielding a possible low score of 7, indicating most independent or strictly cooperative relationship, to a high of 35, indicating most interdependent or fully collaborative relationship. On the Intriligator continuum, the higher the score, the higher the interdependence and, thus, the more collaborative the interorganizational relationship. The internal consistency reliability (alpha) for the Collaboration Continuum Scale in the FY 96 administration was .98 and for the FY 97 administration, it was .96.

AEL Impact Questionnaire. At AEL, impact is defined as changes in clients' attitudes, knowledge, practices, or policies (Meehan, 1991, 1992). Further, these impact changes are organized into seven unique categories. These seven impact categories are: overall satisfaction, knowledge and/or skills, information sharing, use in planning, use in implementation, indirect benefits, and secondary clients use in implementation (Meehan, 1992). Changes reported by AEL clients six months or more after receipt of the product, service, or partnership is how impact is operationalized at AEL. Clients involved in multiple-year partnerships plus those clients who received AEL products or services six months or more earlier completed the impact questionnaire and were included in this study. The impact questionnaire always was section 2 of the annual client survey. It was titled officially as the *AEL Products and Services Questionnaire*.

The AEL Impact Questionnaire consists of 39 rating-scale items. The first 35 items comprise the seven subscales named above with five items each. These 35 items, placed in random order, have a five point response option ranging from 1 (Not at All) to 5 (Much, Very, Many). Subscale scores were generated along with a total score for the 35 items. With the five-point rating scale options per item, each subscale could range from 5 to 25 pints inclusive and the total score could range from 35 to 175 points. The impact instrument also contains four other rating scale items; however, their response option was Likert-type from a low of 1 to a high of 10. These four 10-point scale items were combined to yield a total score that ranged from a low of 4 to a high of 40.

AEL staff have been designing, testing, revising, and re-testing its impact instrument for ten years. The outcomes of those various development stages and its applications have been reported to the research community many times (e.g., Meehan, 1992; Meehan & Wiersma, 1993; Meehan & Wiersma, 1994; Meehan & Wiersma, 1995a; Meehan & Wiersma, 1995b). Several of these studies with the AEL Impact Questionnaire involved AEL clients in various groupings, such as state of residence, professional role group, and educational background/certification level, but the classifications of their collaboration with AEL were categorical. In this effort, interorganizational relationships are viewed—and measured—as being along a continuum suggested by Intriligator. Since its initial administration, only one subscale in one year yielded an internal consistency reliability (alpha) of less than .90—and that single exception was .89.

Satisfaction with Collaboration Scale. This scale was administered in FY 96 and FY 97 only. Items on this scale sought to measure the clients' level of satisfaction with their collaboration with AEL staff on a multiple-year partnership project such as an R&D project, an ongoing network, or a continuous partnership between AEL and a state department of education and its staff. This

scale was not used with clients who received products and services only. Originally, there were ten items that made up the Satisfaction with Collaboration scale. But one additional item was added in FY 97. Sample items in this scale include: "Leadership of AEL in the project," "Efficiency of cooperative efforts," "Extent to which project objectives were met," and "Overall quality of the project." For FY 97, the item "Collaboration has increased the capacity of your organization to apply research to educational practice." was added and was included in the descriptive statistics phase, but was excluded from this study in the advanced analyses phase.

The response options for the Satisfaction with Collaboration scale were five-point, Likert-type scales from a low of 1 to a high of 5. These response options were printed to the right of the stems. The total Satisfaction with Collaboration scale score was generated by adding all the items scores together yielding a possible total ranging form a low of 10 points to a high of 50 points. The internal consistency reliability (alpha) for this scale in FY 96 was .95 and for FY 97, it was .97.

Sample

The annual client survey, which included the three instruments described above, was administered near the end of each Fiscal Year to a sample of AEL clients. The majority of the clients were located in AEL's Regional Educational Laboratory (REL) four-state region of Kentucky, Tennessee, Virginia, and West Virginia. However, some clients were located in other states. The annual client survey was mailed to recipients of AEL products and services in addition to clients participating in multiple-year partnerships; however, clients in the two former groups were omitted from the majority of the analyses.

Recipients of the annual survey were selected by the AEL project directors in charge of the projects. These selections were not done at random. Rather, they used purposive sampling or populations of project participants. The initial number of AEL clients to receive a survey varied by year and were 114, 475, 487, and 225 for FY 96 through FY 99, respectively. However these figures included those receiving products and services only in addition to those long-term in partnerships. The list of recipients was screened each year to avoid any one AEL client receiving more than one AEL survey. Several mailed follow ups were completed each year to increase the response rates which were 68%, 52%, 49%, and 41% for FY 96 through FY 99, respectively.

Five demographic questions were included at the end of the annual client survey. These questions solicited respondents': state, role group, employer, and for educators, number of years as an educator and number of years employed in present position. Most of the respondents were educators of some type, from one of AEL's four states, and the roles with the most respondents were teachers, principals, and state department of education employees. Several of these demographic variables were used in the analyses of the dependent variables and are reported in the findings section.

Analyses

AEL client survey data collected over the four year period provided a substantial database. Approximately 230 clients had complete data on the Satisfaction with Collaboration scale, around 500 clients had complete data on the Collaboration Continuum scale, and around 210 clients had complete data on the AEL Impact Questionnaire. As is typical in these types of surveys, respondents omit answering some items within a scale. Thus, the numbers in the tables vary somewhat. But any statistics from so large a database tend to be stable.

A variety of analyses were computed involving the data of the two collaboration scales. Responses for the individual items were summarized. The scales for the individual items were ordinal measurement. However, as general indicators of central tendency (locators on the scales) and dispersion, the mean and standard deviation were computed for each. The frequencies of responses (N) also are given. Frequencies of the responses and the medians also were computed, and these are mentioned occasionally in the reporting of the results.

The individual items of the Satisfaction with Collaboration scale address a common concept or construct, that is, client's self-report of their satisfaction with the collaboration with AEL. Similarly, the individual Collaboration Continuum Scale items address the independence-interdependence continuum of collaboration first identified by Intriligator (1983). Thus, total scale scores were generated for these two constructs. These total scores synthesize the responses, and although they are made up of items having ordinal measurement, it can be argued that the total scores approach interval scale measurement.

In the analyses, total scores were computed for the various groups as differentiated by various demographic variables. Analyses of variance (ANOVA) were computed using the demographic items as independent variables. If there were only two groups for the independent variable, a t-test for the difference between two means of independent groups was computed. ANOVA and t-tests are inferential statistics procedures. The respondents to the client survey were not random samples, so these statistical procedures do not apply in the strictest traditional sense. However, they do give an indication of the comparison of the within and between groups' variation in total scores.

The AEL Impact Questionnaire measured the perceived impact of AEL products and services of those clients in multiple-year partnerships. The instrument yielded nine different scores. Seven of those nine were for the seven subscales of impact, as described above, one was for the total score for those seven subscales, and the last one was for the total score of the four 1 to 10 response scale items. These scores were correlated with the total scores of the two collaboration scales.

In summary, the attention of the analyses was directed toward the scores on scales of measurement, differences between total scores of designated groups, and relationships between perceptions of collaboration and perceived impact.

FINDINGS

The results of the analyses are reported by type of analyses, beginning with the individual items. As mentioned earlier, frequencies (N) will vary across items and analyses. For an analyses involving total scores, total scores can be obtained only for those individuals who responded to all parts of the scale, subscale, or total scale.

Collaboration Scales

The frequencies, means, and standard deviations for the Satisfaction with Collaboration Scale (SCS) items are given in Table 3. The "j" item has a substantially lower frequency than the other items because it was included only for FY97. The means on the 5-point scale all were above 4.00. Standard deviations were modest; all were less than 1.0 and most were in the .75 to .85 range. Six, or over one-half of the SCS items, had medians of 5.0; and the remaining items had medians of 4.0. The frequencies of the response options showed that very few respondents indicated being dissatisfied. These negative responses ranged from only 2 (of 248) for item "d," relevance of the project to your professional situation, to 12 (of 239) for item "k," collaboration generated additional resources.

The frequencies, means and standard deviations for the Collaboration Continuum Scale (CCS) items are given in Table 4. The response scale for these items represents a continuum from independent to interdependent; the greater the rating the more interdependent the perceived level of collaboration. A rating of 3.0 indicates about equally independent and interdependent, or coordination on Intriligator's continuum. All the means were greater than 3.0, the lowest on interagency structure being 3.20. Interagency objectives and relationships had the most interdependent ratings, both having means greater than 3.5. The standard deviations were homogeneous, all slightly greater than 1.0.

Table 3

Frequencies (N), Means ($\bar{X}$), and Standard Deviations (s) for the Items of the SCS Across All Respondents; FY96 and FY97

SCS Item	N	$\bar{X}$	s
a. Leadership of AEL in the project	250	4.36	.82
b. Efficiency of cooperative efforts	249	4.31	.80
c. Dependability of AEL staff	249	4.55	.73
d. Relevance of project to your professional situation	248	4.42	.76
e. Support of AEL staff in the project	248	4.48	.80
f. Significance of educational concern addressed	249	4.45	.76
g. Usefulness of project results	244	4.24	.84
h. Extent to which project objectives were met	240	4.22	.90
i. Overall quality of the project	246	4.35	.80
j. Collaboration has increased the capacity of your organization to apply research to educational practice	194	4.12	.90
k. Collaboration generated additional resources	239	4.11	.98

Table 4

Frequencies (N), Means ($\bar{X}$), and Standard Deviations (s) for the items of the CCS Across All Respondents; FY96 through FY99

CCS Item	N	$\bar{X}$	s
a. Interagency objectives	503	3.59	1.10
b. Interagency policies	493	3.24	1.20
c. Interagency structure	493	3.20	1.23
d. Personnel roles	500	3.32	1.23
e. Resource allocation	496	3.28	1.27
f. Power and influence	495	3.29	1.19
g. Interagency relationships	497	3.53	1.18

Comparisons of Groups by Demographic Variables – Total SCS Score

The initial comparison of the total SCS score was between the respondents of FY96 and FY97. These results were as follows:

	N	$\bar{X}$	S
FY96	47	45.96	5.59
FY97	182	43.02	7.32

The difference between the means was statistically significant at alpha equal to .05. The FY96 group had the greater mean, although on a scale of 10 to 50 both means were on the high end. Both groups had some scores which attained the maximum score of 50. However, the FY96 group had a minimum score of 28, whereas the minimum for the FY97 group was 11. The lower scores contributed to the greater variability of the FY97 group scores.

The total SCS score collapses the information across the SCS items. However, as a rough measure of the parts that contributed most to the significantly greater mean for FY96, t-tests were computed for the 10 individual items. Of these 10, the differences between the means were statistically significant (alpha=.05) for the following 6 items:

leadership of AEL
efficiency of cooperative efforts
dependability of AEL staff
extent project objectives were met
overall quality of project
generated additional resources

The FY96 group had the greater means for these 6 item items, and the FY96 group had the greater means for all 10 items, although for the remaining 4 items the differences between the means were not statistically significant.

A second independent variable for analyzing the SCS scores was state where employed using the four states of AEL's REL region. The information by state is given in Table 5. The F-value from the ANOVA was 2.78 which is statistically significant at .05. Tennessee had the high mean and Virginia the low mean and these means had a difference of 3.94, the only statistically significant difference among the group means. The variance within the groups was quite homogeneous, although the Virginia scores were the most variable.

Another independent variable included in the analysis was professional role, for which there were six categories. Teacher had by far the most respondents with almost one-half of the 174 respondents that had total scores and fit one of the six professional role categories.[1] The K-12 Central Office Staff (COS) Program category indicates those involved with programs such as a curriculum coordinator or director of elementary education. The results of the ANOVA for professional role are given in Table 6.

The striking result of the analysis by professional role was the homogeneity of the means. Excluding the two, K-12, Central Office Staff (COS), Admin respondents who had the low means, the means of the other five groups had a maximum difference of slightly more than 1.0. The principals had the highest mean, followed by the superintendents. The standard deviations were homogeneous excluding that of the two, K-12, COS, Admin respondents. With only two scores, statistics of that group were unstable.

There were 229 respondents who had total SCS scores across the two years. The mean for all 229 scores was 43.2 and the standard deviation 7.09. This mean was toward the high end of the satisfaction scale and the scores were quite homogeneous.

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[1] There were several professional roles not included in the analysis because the numbers were very small, and some respondents did not indicate a professional role. So, the total numbers of scores by professional role is less than the number for state where employed. Also, there were some respondents not employed in the 4-state region.

Table 5

Frequencies (N), Means ($\bar{X}$), and Standard Deviations (s) for the SCS Total Score by State Where Employed; FY96 and FY97

State	N	$\bar{X}$	s
Kentucky	28	43.32	6.06
Tennessee	30	45.67	5.53
Virginia	60	41.73	8.46
West Virginia	94	44.52	6.77
F=2.78, df=3,208 significant at alpha=.05			

Table 6

Frequencies (N), Means ($\bar{X}$), and Standard Deviations (s) for the SCS Total Score by Professional Role; FY96 and FY97

Professional Role	N	$\bar{X}$	s
Teacher	84	43.74	6.73
Principal	30	44.80	6.36
Superintendent	21	44.00	6.38
K-12, COS, Admin	2	38.50	12.02
K-12, COS, Program	15	43.67	8.23
State Dept. of Education	22	43.91	5.29
F=.39, df=5,168 Not significant			

Comparison of Groups by Demographic Variables – Total CCS Score

The CCS scale was included in the client survey for four years and 477 respondents had total scores. The statistics from the ANOVA with year as the independent variable are given in Table 7. The overall mean was 23.45. Although FY96 had the greatest mean (indicating the most interdependence or collaboration) the means were homogeneous with no significant difference between them. The standard deviations were quite similar across the years.

Four hundred, nineteen of the respondents with total CCS scores indicated one of the four states in AEL's region as their state of employment. The results of the ANOVA by state are given in Table 8. Again there was no significant difference between the state means and the standard deviations were quite homogeneous. The largest difference between standard deviations was about 1.2.

The ANOVA for professional role as the independent variable had the same six categories of professional role in the independent variable as the ANOVA for the SCS total score. The results are given in Table 9. The total respondents indicating professional role was 351. There were no significant differences among the means and the variability of scores was quite homogeneous across professional roles.

Although there were no statistically significant differences among the means, the K-12, Central Office Staff (COS), Administrative group perceived the collaboration as most interdependent, and the teachers as most independent. As usual, teacher was the group with by far the greatest frequency, so this group had the most influence on the overall mean which was 23.50 for all those with total CCS scores.

Table 7

Frequencies (N), Means ($\bar{X}$), and Standard Deviations (s) for the CCS Total Score by Year

Year	N	$\bar{X}$	s
FY96	46	25.24	8.54
FY97	175	23.66	6.99
FY98	175	23.27	7.43
FY99	81	22.35	7.61
F=1.57, df=3,473 Not significant			

Table 8

Frequencies (N), Means ($\bar{X}$), and Standard Deviations (s) for the CCS Total Score by State Where Employed; FY96 through FY99

State	N	$\bar{X}$	s
Kentucky	73	25.34	5.84
Tennessee	76	23.68	8.06
Virginia	116	23.03	7.00
West Virginia	154	23.49	7.86
F=1.57, df=3,415 Not significant			

Table 9

Frequencies (N), Means ($\bar{X}$), and Standard Deviations (s) for the CCS Total Score by Professional Role; FY96 through FY99

Professional Role	N	$\bar{X}$	s
Teacher	152	22.39	7.20
Principal	68	24.56	8.14
Superintendent	44	24.23	7.82
K-12, COS, Admin	13	26.77	5.53
K-12, COS, Program	27	23.26	8.29
State Dept. of Education	47	24.13	5.97
F=1.64, df=5,345 Not significant			

Recipients of the FY98 and FY99 AEL client surveys received one of five Section 1 questionnaires: those (1) involved in applied research and development projects, (2) that received products, (3) that received services, (4) involved in strategic alliances, and (5) involved in joint ventures. Numerous recipients of the products and services questionnaires had not collaborated with AEL in projects. Across two years, FY98 and FY99, and the type of Section 1 questionnaires, 256 respondents had total CCS scores. An ANOVA with type of Section 1 questionnaire was computed, and the results are given in Table 10. There were no significant differences between the means and the variability within the groups was quite homogeneous. It is interesting to note that those involved in projects perceived the collaboration as most independent in comparison to the other groups. However, their score is above the midpoint, indicating a position five points above the coordination point on the continuum.

Correlational Results

The total scores for SCS and CCS lend themselves to correlational analyses, of course, indicating relationships between variables. Even for the SCS score, for which there were only two years of data, the frequencies were quite large, providing a lot of statistical power when testing for statistical significance. Thus, a relatively modest correlation coefficient tends to be statistically significant and it may be more informative to focus on the relative magnitude and pattern of correlation rather than statistical significance or the lack thereof.

The correlation coefficient between the SCS score and CCS score was .43 based on 184 respondents who had total scores on both measures. This correlation indicates a modest relationship so that the greater the satisfaction with the collaboration, the greater the perceived interdependence of the collaboration.

Table 10

Frequencies (N), Means ($\bar{X}$), and Standard Deviations (s) for the CCS Total Score by Type of Section 1 Questionnaire; FY98 and FY99

Type of Section 1	N	$\bar{X}$	s
Projects	59	21.56	7.18
Products	40	24.78	8.56
Services	86	23.58	7.01
Strategic Alliances	43	22.33	6.67
Joint Ventures	28	22.54	8.81
F=1.36, df=4,251	Not significant		

As mentioned earlier, the client survey included a Section 2 questionnaire designed to measure perceived impact of AEL products and services. Responses to that 39-item questionnaire generated 9 scores (7 subscale and 2 total) defined as follows, with the subscale scores listed first.

S_1: Overall client satisfaction
S_2: Knowledge and/or skills gained
S_3: Information sharing
S_4: Use in planning
S_5: Use in implementation
S_6: Indirect benefits
S_7: Secondary clients' use in implementation
T_1: Total score across the 7 subscales
T_2: Total score on 4, 10-point rating scale items

The correlations between the impact measures and the SCS and CCS total scores are given in Table 11. The S and T designations are used in the table along with the scale names. In order to compute correlation coefficients, it is necessary to have scores on both variables. In order to generate a score for the impact measures—the SCS score and the CCS score—the respondent must complete all parts of the measure or score. Therefore, the numbers of pairs of scores for the correlation coefficients varied slightly. The numbers involving the SCS score tended to be around 210 for the impact subscales, the number for T_1 was 193, and that for T_2, was 215. The corresponding numbers for the CCS score were 330, 305, and 340.

AEL's client base consists primarily of educators. In the demographic section of the client survey, if they were educators, respondents were asked to indicate the number of years employed as an educator and the number of years in present position. These two variables were correlated with the SCS and CCS scores, and those coefficients are given in Table 12.

The average number of years employed as an educator had a mean of 21.57 years and a standard deviation of 8.91 for all those individuals who completed this item. The corresponding statistics for years in present position were 8.76 and 8.69 years respectively. The correlations of these variables with SCS and CCS, although all slightly positive, essentially were of zero magnitude. In fact, even with the relatively large numbers, the .14 and the .08 correlations were not statistically significant.

Table 11

Correlation Coefficients Between the Impact Measures and the SCS and CCS Scores

Impact Measure	SCS	CCS
S_1: Overall client satisfaction	.79	.41
S_2: Knowledge and/or skills gained	.77	.40
S_3: Information sharing	.63	.41
S_4: Use in planning	.69	.40
S_5: Use in implementation	.65	.37
S_6: Indirect benefits	.70	.45
S_7: Secondary clients' use in implementation	.65	.46
T_1: Total score across the 7 subscales	.75	.46
T_2: Total score on 4, 10-point rating scale items	.76	.42

Table 12

Correlation Coefficients between SCS and CCS Scores and Demographic Data on Educational Employment

Educational Employment	SCS	CCS
Years employed as educator	.23 (195)*	.10 (420)
Years in present position	.14 (198)	.08 (424)

* The number in parenthesis is the number of pairs of scores for computing the correlation coefficient.

CONCLUSIONS

Based on the preceding results, the following conclusions are warranted about AEL collaboration as perceived by clients involved in projects with AEL.

1. Satisfaction with collaboration consistently was high across factors that affect collaboration and especially with the dependability and leadership of AEL staff.

2. Satisfaction with collaboration was consistently high within factors that affect collaboration as evidenced by the small standard deviations.

3. The level of collaboration was perceived to be slightly to the interdependent side of the independent-interdependent continuum. On the Intriligator continuum, this is just above the coordination position. As might be expected, the objectives and the relationships across agencies tend to be the most interdependent. Structure tends to be the most independent.

4. Although satisfaction with collaboration was high for both FY96 and FY97, satisfaction was higher for the FY96 clients and this higher satisfaction was consistent across factors that affect collaboration.

5. Relative to the state in which the collaboration took place, Tennessee clients had a greater level of satisfaction than clients in Virginia. It is likely that this result was more a function of the type of projects than due to geographical location.

6. Professional role (of educators) does not seem to affect the satisfaction level with collaboration.

7. The perceived level of collaboration tended to be slightly toward the interdependent end of the independent-interdependent continuum, or slightly above the coordination position. This result seems reasonable and appropriate considering the nature of collaboration. However, there was some variation of this perception as evidenced by a standard deviation of almost 7.5 on a scale which had a possible range of 7 to 35.

8. The perceived level of collaboration, whether independent or interdependent, was the same across the four years, slightly toward the interdependent (or coordinative) end of the continuum.

9. The perceived level of collaboration appeared to be the same across the four states of AEL's region. If there was any tendency to differ among the clients of the four states, those in Kentucky tended to be the most interdependent or collaborative.

10. There were no differing effects of professional role upon the perceived level of collaboration.

11. There were no differences in perceived level of collaboration among clients receiving the two different collaboration questionnaires. If there is any tendency, those clients involved with AEL in projects appear to see collaboration as the most independent (or cooperative).

12. There was a relationship between the level of satisfaction of collaboration and the level of independence/interdependence. The relationship is such that the greater the satisfaction the more the collaboration is considered to be interdependent.

13. There were consistently strong relationships between the level of satisfaction with collaboration and the perceived impact of AEL products and services. This relationship was such that the greater the satisfaction the greater the perceived impact.

14. There were consistently moderate relationships between the perceived level of collaboration and perceived impact of AEL products and services. The relationships were directional so that the greater the satisfaction the more the collaboration was considered to be interdependent.

15. There was no relationships between years employed as an educator and either satisfaction with collaboration or perceived level of collaboration.

16. There was no relationship between years in present position as an educator and either satisfaction with collaboration or perceived level of collaboration.

In summary, it can be concluded that collaboration with AEL is very satisfying to those clients involved. This level of satisfaction is not affected by other factors, except possibly the year and state in which the collaboration occurred. However, differences in satisfaction may be more a function of the specific projects rather than geography or time.

Level of collaboration is perceived to be slightly more interdependent than independent or just above the coordinative position on Intriligator's continuum. This situation is consistent across various factors and very likely represents a good balance between independence and interdependence.

Finally, as clients are more satisfied with collaboration and see collaboration as increasingly interdependent, they also perceive more impact of AEL products and services.

REFERENCES

Goldman, H. & Intriligator, B. (1988). *A profile of state interagency efforts for children with special needs and their families.* Washington, DC: Georgetown University Child Development Center. (ERIC Document Reproduction Service No. ED346082).

Himmelman, A.T. (1996). Rationales and contexts for collaboration. On the theory and practice of transformational collaboration: from social service to social justice. In C. Huxham (Ed.), *Creating collaborative advantage* (pp. 19-43). London: Sage.

Himmelman, A. T. (2001). *Collaboration for a change: Definitions, decision-making models, roles and collaboration process guide.* Unpublished manuscript.

Hodges, S., Nexman, T., & Hernandez, M. (1999). Promising practices: Building collaboration in systems of care. *Systems of care: Promising practices in children's mental health, 1998 series, volume VI.* Washington, D.C.: Center for Effective Collaboration and Practice, American Institutes for Research. Retrieved from the world wide web October 29, 2001: www.air.org/cecp/promisingpractices/1998monographs/vol16.pdf

Intriligator, B.A. (1983). *Evaluating interorganizational relationships.* Paper presented at the 67th Annual Meeting of the American Educational Research Association, Montreal, Quebec, April 11-15. (ERIC Document Reproduction Service No. ED 237 553).

Intriligator, B.A. (1992). *Establishing interorganizational structures that facilitate successful school partnerships.* Paper presented at the 76th Annual Meeting of the American Educational Research Association, San Francisco, California, April 20-24. (ERIC Document Reproduction Service No. ED 347 692).

Meehan, M.L. (1991). *Impact: Definitions and categories.* Charleston, WV: Appalachia Educational Laboratory, Evaluation and Planning Unit.

Meehan, M.L. (1992, November). *Empirical development of seven categories and their definitions for impact evaluation.* Paper presented at Evaluation '92, the annual meeting of the American Evaluation Association.

Meehan, M.L., & Wiersma, W. (1993, November). *Pilot test of an instrument to assess the impact on clients made by an R&D organization.* Paper presented at Evaluation '93, the annual meeting of the American Evaluation Association, Dallas, TX.

Meehan, M.L., & Wiersma, W. (1994, November). *Two field tests of an instrument to assess the impact on clients made by an R&D organization on its clients.* Paper presented at Evaluation '95, the annual meeting of the American Evaluation Association, Boston, MA.

Meehan, M.L., & Wiersma, W. (1995a, November). *Third field test and refinement of an instrument to assess the impact on clients made by an R&D organization on its clients.* Paper presented at the Annual Meeting of the American Evaluation Association, Vancouver, British Columbia, Canada. (with William Wiersma)

Meehan, M.L., & Wiersma, W. (1995b, November). *Impact of Appalachia Educational Laboratory's products and services to its clients on three employer groups and five role groups.* Charleston, WV: Appalachia Educational Laboratory, Planning, Research, and Evaluation Unit.